# DIGITAL OUTPUT PHOTO REFLECTOR

## ■ GENERAL DESCRIPTION

The NJL5802K is thin package digiral output type photo reflector which consist of New JRC original designed one chip photo recieving IC and high output LED.

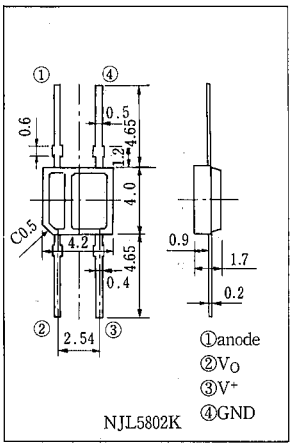
## ■ FEATURES

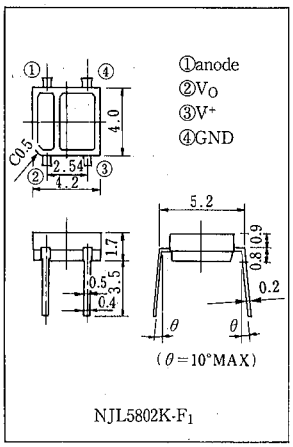
- Normaly off type
- With schmitt triger circuit
- TTL Compatible
- Built-in visible light cut-off filter.

## ■ APPLICATIONS

- Tape end sensor
- Reel rotation sensor
- Paper detector, Paper end sensor
- Bar code reader
- Sensor of FDD, Robot, manufacturing installation, etc.

## ■ OUTLINE (typ.) Unit: mm

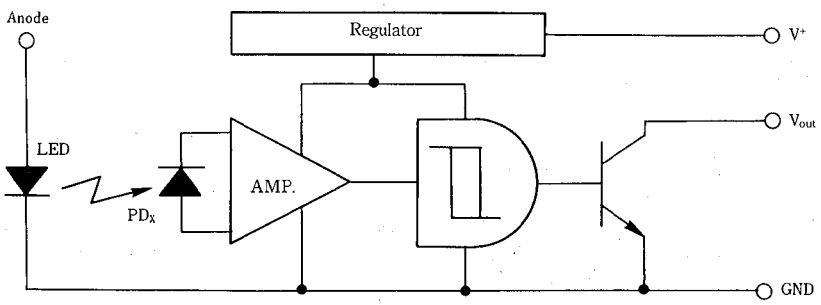



## ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|---|---|---|
| Emitter | | | |
| Forward Current (Continuous) | $I_F$ | 50 | mA |
| Reverse Voltage (Continuous) | $V_R$ | 6 | V |
| Power Dissipation | $P_D$ | 75 | mW |
| Detector | | | |
| Supply Voltage | $V^+$ | 16 | V |
| High Level Output Voltage | $V_{OH}$ | 16 | V |
| Low Level Output Current | $I_{OL}$ | 50 | mA |
| Power Dissipation | $P_O$ | 110 | mW |
| Coupler | | | |
| Total Power Dissipation | $P_{tot}$ | 130 | mW |
| Operating Temperature | $T_{opr}$ | −20～+85 | °C |
| Storage Temperature | $T_{stg}$ | −30～+100 | °C |
| Soldering Temperature | $T_{sol}$ | 260 (5sec. 1.5mm from body) | °C |

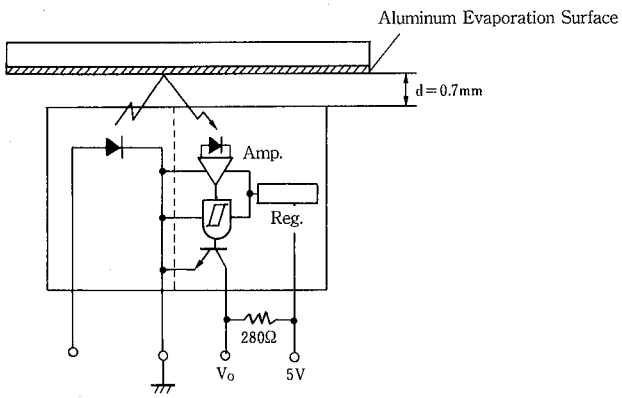
## ■ BLOCK DIAGRAM



## ■ ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

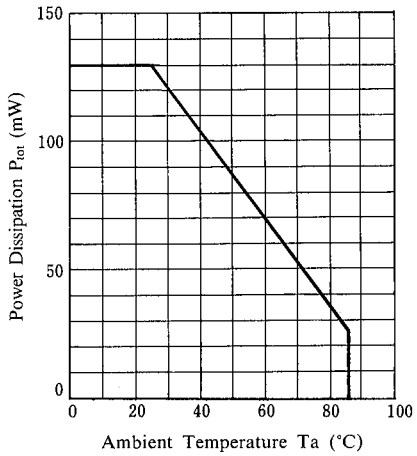
| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Emitter | | | | | | |
| Forward Voltage | $V_F$ | $I_F$=10mA | — | 1.1 | 1.3 | V |
| Reverse Current | $I_R$ | $V_R$=6V | — | — | 1.0 | μA |
| Capacitance | $C_t$ | $V_R$=0V, f=1MHz | — | 25 | — | pF |
| Detector | | | | | | |
| Supply Voltage Range | $V^+$ | | 3.5 | — | 15 | V |
| Low Level Output Voltage | $V_{OL}$ | $I_{OL}$=16mA, $V^+$=5V, $I_F$=10mA, d=0.7mm | — | 0.2 | 0.5 | V |
| High Level Output Current | $I_{OH}$ | $V_O$=$V^+$=15V, $I_F$=0mA | — | — | 100 | μA |
| Low Level Supply Current | $I_{CCL}$ | $V^+$=5V, $I_F$=10mA, d=0.7mm | — | 3 | 10 | mA |
| High Level Supply Current | $I_{CCH}$ | $V^+$=5V, $I_F$=0mA | — | 4.5 | 10 | mA |
| Coupled | | | | | | |
| H→L Threshold Input Current | $I_{FHL}$ | $V^+$=5V, $R_L$=280Ω, d=0.7mm | — | — | 10 | mA |
| Hysteresis | $I_{FLH}/I_{FHL}$ | $V^+$=5V, $R_L$=280Ω, d=0.7mm | — | 0.8 | — | |
| H→L Delay Time | $t_{PHL}$ | $V^+$=5V, $R_L$=280Ω, $I_F$=10mA, d=0.7mm | — | 10 | — | μs |
| L→H Delay Time | $t_{PLH}$ | $V^+$=5V, $R_L$=280Ω, $I_F$=10mA, d=0.7mm | — | 5 | — | μs |
| Fall Time | $t_f$ | $V^+$=5V, $R_L$=280Ω, $I_F$=10mA, d=0.7mm | — | 0.1 | — | μs |
| Rise Time | $t_r$ | $V^+$=5V, $R_L$=280Ω, $I_F$=10mA, d=0.7mm | — | 0.1 | — | μs |

## ■ MEASURING SPECIFICATION FOR THRESHOLD INPUT CURRENT

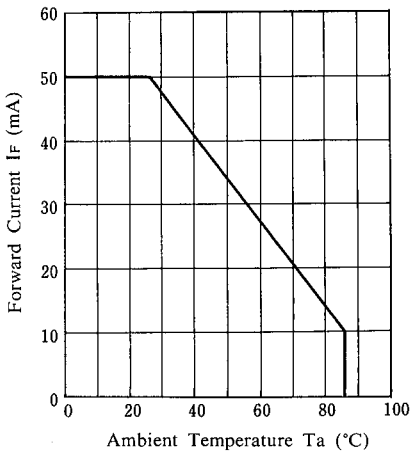



## ■ MAXIMUM RATING CURVES

### ■ Power Dissipation vs. Temperature

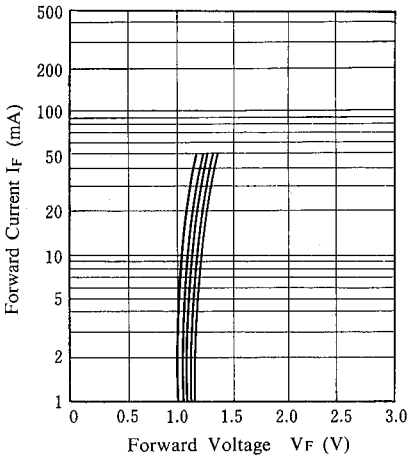



### Forward Current vs. Temperature

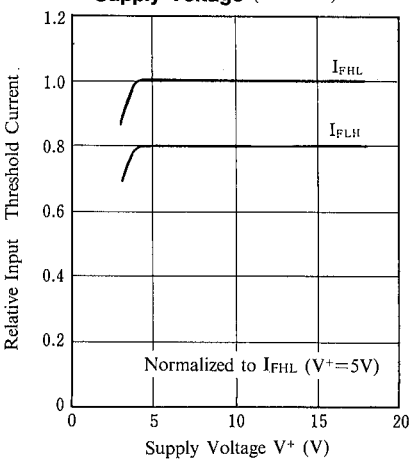


## ■ TYPICAL CHARACTERISTICS

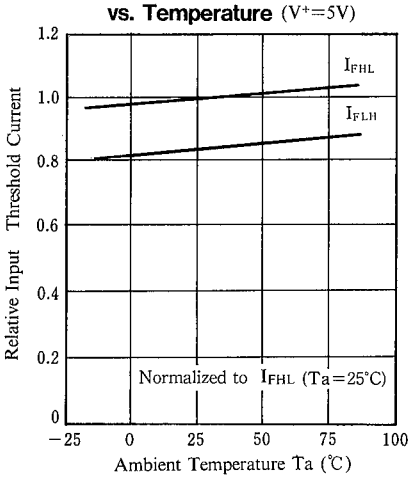
**Forward Current vs. Forward Voltage**
(Ta=85℃, 50℃, 25℃, 0℃, −20℃)



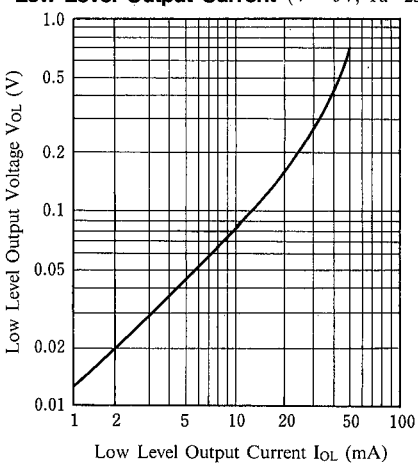

**Input Threshold Current vs. Supply Voltage** (Ta=25℃)



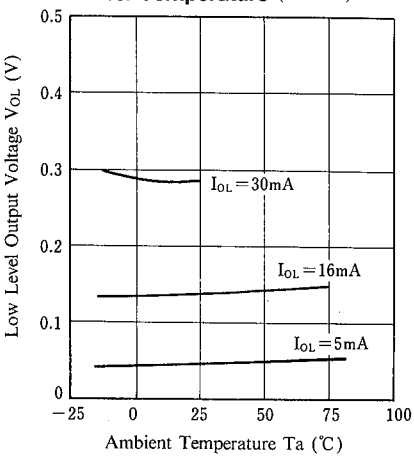

**Input Threshold Current vs. Temperature** ($V^+$=5V)



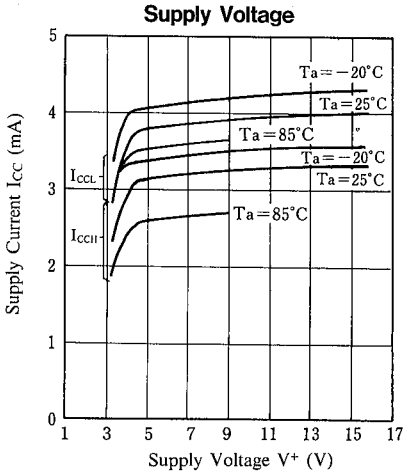

**Low Level Output Voltage vs. Low Level Output Current** ($V^+$=5V, Ta=25℃)




**Low Level Output Voltage vs. Temperature** ($V^+$=5V)

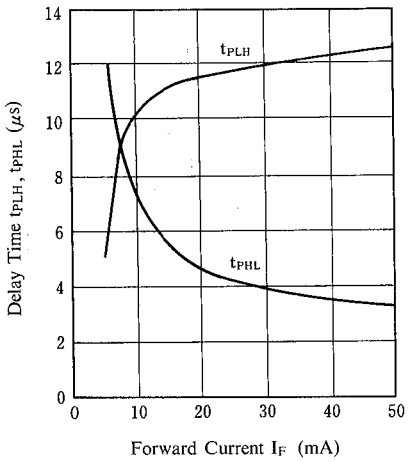



**Supply Current vs. Supply Voltage**



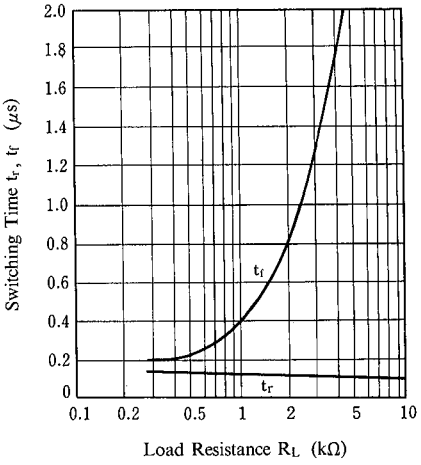
**Delay Time vs. Forward Current**

($V^+$=5V, $R_L$ =280Ω, Ta=25℃)



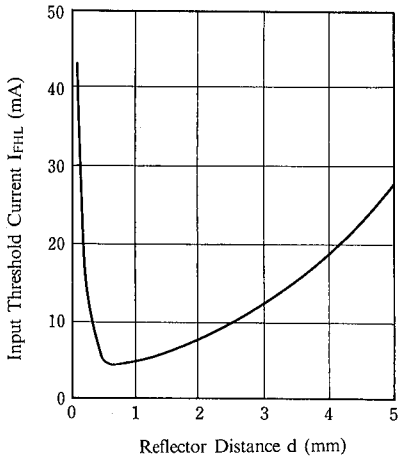

**Switching Time vs. Resistance**

($V^+$=5V, $I_F$ =10mA, Ta=25℃)

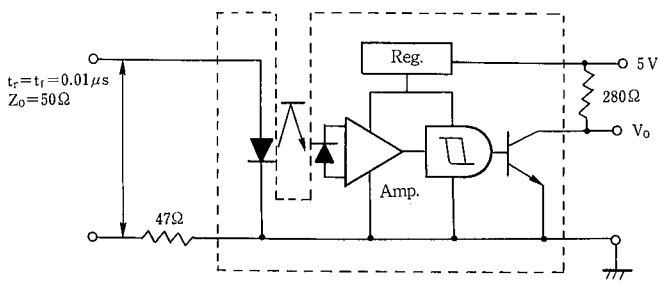


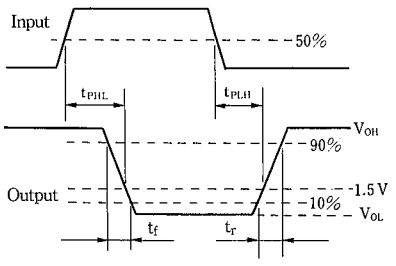

**Input Threshold Current vs. Distance**

($V^+$=5V, $R_L$ =280Ω, Ta=25℃)




**Measuring Circuit for Response Time**



MEMO

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